

FLIP-CHIP PACKAGE WITH UNDERFILL HAVING LOW DENSITY FILLER

Abstract of the Disclosure

A method and structure for solderably coupling a semiconductor chip to a substrate, with an underfill between the chip and the substrate. In forming the structure, underfill material is dispensed upon a conductive pad on the substrate. The underfill material comprises a resin and a filler. The filler density is less than the resin density. The chip is moved toward the substrate and into the underfill until a solder member coupled to the chip is proximate the conductive pad. The structure is heated, resulting in soldering the solder member to the conductive pad and in curing the underfill. Filler particles move through the resin and toward the chip, resulting in an increased filler concentration near the solder member, and a reduced underfill coefficient of thermal expansion (CTE) near the solder member that is close to the CTE of the solder member.